

VIRGINIA WILDLIFE

MAY 2007

TWO DOLLARS





Commonwealth of Virginia
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Director

Springtime is a great time to take a young person outdoors. Kids thrive when given the opportunity to enjoy outdoor experiences with the important people in their lives. With warmer weather and longer days it's the perfect time to take a hike on G. R. Thompson Wildlife Management Area (WMA) in Fauquier County to view thousands of wild flowers such as lady slippers and trillium. Or to reel in a bluegill fishing at Lake Orange. Or enjoy eagle watching at Hog Island WMA.



This issue includes an article featuring a mother and son who struck a deal to share their favorite pastimes, turkey hunting and big city shopping. Spring gobbler season is at its peak and I encourage you to invite a young person, or even your mother, to experience the thrill and beauty of turkey hunting. Now is the time to pull your loved ones away from the TV, the computer, work and chores to spend some quality time together enjoying Virginia's wildlife and natural resources. Experiences like that become the cherished memories we carry with us for the rest of our lives.

The Department continues to seek innovative ways to create additional outdoor opportunities: the new



crossbow season; special hunts designed for youth, women and disabled people; the youth-only opening day for spring gobbler season; the upcoming free fishing days at the beginning of June; the urban trout stocking program; special kids fishing events; and, if that weren't enough, we're introducing a first-time ever June squirrel season which is also featured in this issue of the magazine.

A couple of months ago I accepted an invitation to attend the Kid's Day Trout Fishing event at Graves Mountain Lodge in Madison County. Despite the chilly temperatures, hundreds of children, their parents and friends turned out for what was to be a great day of fishing. Take a look at the smiles on the faces of the children in these photographs taken at that event. I truly hope it motivates you to put that kind of smile on the faces of the children in your life by taking them hunting and fishing.

HUNTING & FISHING LICENSE FEES

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Mission Statement

To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth; to provide opportunity for all to enjoy wildlife, inland fish, boating and related outdoor recreation; to promote safety for persons and property in connection with boating, hunting and fishing.

Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

MAY CONTENTS



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Somewhere on a remote mountain-side in Southwest Virginia, wildlife biologist David Garst, who is currently working on a Masters Degree in Fisheries and Wildlife at Virginia Tech and

Mike Pinder, a wildlife diversity biologist with the Virginia Department of Game and Inland Fisheries, are looking at the distribution of timber rattlesnakes in Virginia. Virginia has two separate rattlesnake populations, the canebrake which is found in the southeastern Coastal Plain and the timber rattlesnake in the western mountains of Virginia. ©Lynda Richardson

VIRGINIA WILDLIFE

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Woooooooo, Woooooooo



©John R. Ford

Who Cooks for You

Making hunting a family affair is often a test of give-and-take as one mother and son team learned.

by Rachel Anderson

Do I see lights on at Joey's house again in the middle of the night? Three mornings this week, what could be wrong? How could I be so dumb...it's March and he has Spring Fever. Oh, not the kind where you sit out on the porch and warm yourself with the cats...it's the call of the "big bird" and he is not yellow.

Finally, I had to ask what could possess a person to the point that he gets up before 3:00 a.m. to go out in the cold darkness and wait for dawn. My answer was "Oh, Mom you would have to go to understand."

After several years of this, I couldn't stand it any longer; I had to know how a young man could lose all interest in everything else and sometimes (between listening, hunting, and work) go 30 hours with no sleep. There has got to be more to this than meets the eye or maybe it's the ear. So, after having been invited to go many times, I made a proposition with Joey—go to New York with me and I'll go hunting with you. "OK, it's a deal."

So plans were made, tickets and reservations in order, Joey outfitted with just the right dinner jacket, trousers, socks and shoes to match. The weekend arrived and the whirlwind trip was over in a flash. We came home exhausted but still laugh-

ing and enjoying the memories of all we had seen and done.

Now it was Joey's turn to keep his end of the deal—what a tough act to follow—I mean, a weekend in the Big Apple, compared to a few hours in a blind, waiting and listening for a big bird!

Making plans for this trip was not as easy as a few phone calls. It started months before with trips out to listen in his best hunting areas...listening for the sound that rattles the grayness of dawn and makes the hair stand up on the back of your neck—a gobble and hopefully more than one.

By the time the season opened, Joey had located several nice toms, had permission to hunt the property, and was ready for the next step of preparation—outfitting Mom. There was not a thing in her closet for her to wear! So, shopping had to be done—finally everything was all together—good warm long johns, camouflage everything from hat to socks, and boots. Luckily, I had a shotgun I felt comfortable using.



The old saying "You can take the boy out of the country, but you can't take the country out of the boy," takes on a whole new meaning with this city slicker mom and diehard turkey hunting son.



Being a little concerned about going into the woods during turkey season and making noises like a turkey, what if we "called up" another hunter rather than a turkey; precautions would be taken. He explained that we would wear blaze orange until we were in the blind. After tying a blaze orange band around the tree trunk above our heads, we would remove or reverse our blaze orange hat and replace it with camouflage. Feeling better about all of this, I tried to sleep but kept looking at the alarm clock all night.

On the morning of the hunt, Joey went to an area where he had permission to hunt several farms. He started with one where he could get fairly close to the spot he had heard a gobbler, so Mom wouldn't have to walk so far. I think to myself, except for no sleep, this isn't so bad. After getting all settled in the blind—everything so dark and quiet—I was worried about falling asleep. In a little bit, however, I was too cold to sleep and about then things started to come to life around me...an owl over here, a crow over there, but no gobblers.

Finally, Joey decided it was time to "call" and see if he could get a lone-some, lovesick tom to answer. The sound of the call was very familiar; as Joey practiced all the time—something I couldn't get him to do when I thought he ought to take music lessons! The calls sounded flawless to

me, but then I had never heard a real hen singing a love song. After several whining and clucking attempts with no results, Joey made the sound of a gobbler, thinking that it might make an approaching tom jealous and instinctively respond, but no luck.

By now, the sun is up and Joey decided we would try another place over the hill. The long johns have begun to heat up and the boots weigh a ton, but that's all right because that "turkey" is just over the hill, waiting for Joey's invitation.

Again, we get all set up, and of course, all this walking and preparation has to be done without making a sound. We sit motionless, without a sound, listening for that elusive sound—nothing—so Joey begins to sing the love songs, waiting, singing, gobbling—is this like the opera we attended in New York or what?

It's getting close to mid-day—time to call it a day and to go to work. Boy, is it hot in these long johns...whew! We rode around thinking he could show me one feeding in a quiet field somewhere, but nope! No turkey today.

I saw all the glorious sights of the dawning day, walked in soft, new green growth, smelled spring and was amazed at the sun bouncing off of the redbuds that were in full bloom; I saw and heard many new sights and sounds, but I didn't hear "the big bird." I was very disappoint-



©Dwight Dyke

When it comes to turkey hunting, Joey's best tip to his mom, Susan Rothgeb, is to be patient and learn to enjoy the moment, which he found to be just as important when it came to visiting a place like New York City.

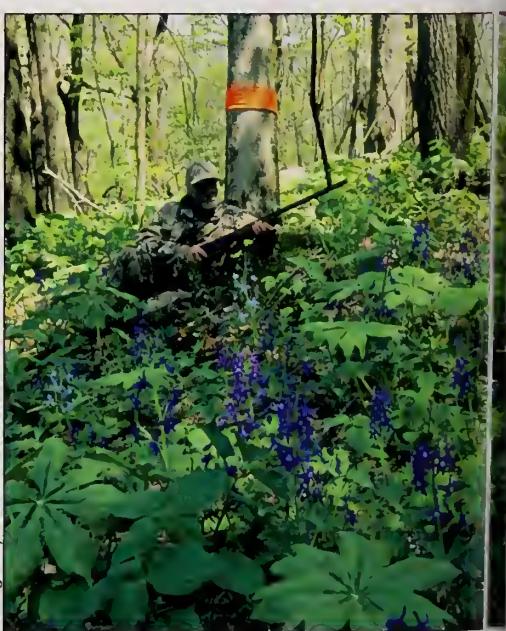
ed and worried that I had made it a bad bird day for Joey, but he reminded me that it's all part of hunting and there is always tomorrow.

Sure enough the next morning Joey went out and came back all smiles with a big, glossy, black bird thrown over his shoulder.

This great big turkey and it's not even Thanksgiving or Christmas, but



©Dwight Dyke



©Dwight Dyke

good eating anytime. A wild turkey has to be treated a little differently than one pen raised for the market. During spring hunting, you need to dress the bird as quickly as possible, especially if it is one of those warm days. In the spring, turkeys feed mainly on greens and the best tasting greens at the time are onions. Boy, do they love them! They eat so many the meat even smells and tastes slightly like an onion. Now, you use camouflage of a different nature—something to blend with the onion. If you can't beat-um, join-um—so mix up Italian dressing according to directions and rub the turkey, inside and out with the oily mixture. Let it marinate overnight (or less if the onion smell is mild), then rub off all of the mixture that you can. Stuff the turkey with a couple of quartered apples and place in a baking bag and cook about 20 minutes per pound at 375° degrees until the meat pulls back from the leg bone. Discard the apples. Slit the bag down the breast for the last 20 minutes and pull the bag back off the turkey a little so it will brown.

Remember, a wild turkey can fly and it takes quite a powerful muscle and wing structure to lift 12 to 15 pounds off the ground with only a few running steps and the spring out of a slight squat to get it all in motion. Depending on how far and how often he flies determines the color and texture of the breast. You are not going to find pretty white meat but a beige meat (or darker) that tends to be dry, but the baking bag and the apples will help add moisture. The juice in the bag makes delicious gravy that can be poured over the meat when serving. The taste of wild turkey is rich and meaty, calling for plenty of cranberry sauce...umm, that's good eating.

Yes, the dinner jacket hangs in Joey's closet and the camouflage hangs in mine—will we use them again? You bet! In the meantime, when the occasion arises, I can "talk turkey." □

Rachel Anderson is a retired Professor Emeritus of Randolph-Macon College, in Ashland, Va. She now spends her time rabbit hunting with her husband Dick and tending to her garden at their farm in Caroline County.



Joey, his mom, Susan, and author Rachel Anderson, gather to enjoy the rewards of a successful spring turkey hunt. Perhaps the most valuable experience that Joey and his mom gained from their deal-making proposition is that life is short, and spending quality time with someone often requires a little give-and-take, which in the long run can go a very long way to improving the quality of one's life.

A new hunting opportunity for Virginia hunters opens in June

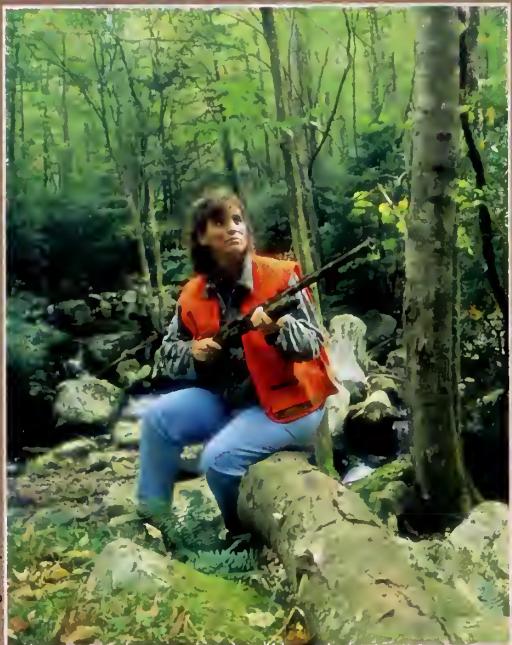
by Pat Cook

In an effort to offer additional hunting opportunities Virginia now joins seven other states that currently offer a spring/summer squirrel season. Hunters will be allowed to harvest squirrels from June 2 through 23 on the following Department of Game and Inland Fisheries Wildlife Management Areas (WMAs): Amelia, Big Survey, Chickahominy, Dick Cross, Dismal Swamp, Fairystone, Goshen, Havens, Hog Island (Carlisle Tract only), Horsepen, James River, Pettigrew, Phelps, Powhatan, Thompson, Turkeycock Mountain and White Oak Mountain.

You may be wondering right now, "Why in the world would

we have a squirrel season in June?" Believe me, when I first heard about it, the idea sounded more than a little strange. However, I changed my mind after thinking on the matter a bit. I think many of you will as well.

Probably the most common concern regarding the season that I've heard is that hunters will kill pregnant squirrels and orphan squirrel nestlings. June is the time of year when many of our wildlife species are reproducing and caring for their young. So, it's natural to assume that squirrels would be turning out more squirrels during this time as well. However, from a biological standpoint, the June squirrel season will actually occur at an opportune time. A study conducted in Virginia found that squirrels can produce young throughout the year. However, 81 percent of all squirrel litters were born during February-March and July-August. Only 0.9 percent were born in



©Dwight Dyke

©John R. Ford

Squirrel Se



By the time June rolls around, most hunters have traded in their hunting gear for a fishing pole. But that is about to change with the new spring squirrel hunting season. Beginning June 2nd through the 23rd, hunters will be allowed to harvest squirrels on selected Department-owned Wildlife Management Areas.

ason in June?

May and 1.4 percent in June. Very few pregnant squirrels or ones caring for young will be harvested during the June season, much fewer than during parts of the regular squirrel season.

What about the heat? June is certainly a warmer month than when most squirrel hunting takes place. However, compared to the first month of the regular squirrel season, September, June really isn't that much warmer. Averaged across the entire Commonwealth, the normal maximum temperature in September is 78 degrees. In June, it's only 3 degrees warmer at 81 degrees.

Many squirrel hunters may think that squirrels taken during June would be infested with "wolves." For those of you not as familiar with

squirrels, the term refers to the larval stage of cutaneous warbles (a type of fly). These larvae develop just under the skin of their squirrel hosts for 3 to 7 weeks, exit through a small hole, and drop to the forest floor where they overwinter in the pupal stage. Infestations are generally not harmful to the squirrel. They also do not affect the edibility of the meat because the larvae are restricted to the skin and do not damage muscle tissue. Unfortunately, however, hunters often discard squirrels infested with the larvae. Although it is possible that squirrels taken during the June season could be infested, it's not very likely. Infestations are greatest in late summer and early fall. Hunters associate wolves with warmer tempera-

tures because as the regular squirrel season progresses into the colder months, squirrels are less likely to have them. It's far more likely for a squirrel to be infested in September than in June.

Of course, hunting squirrels in June will require somewhat different tactics. I've never hunted squirrels in June, but one thing is certain, you won't have much success searching for areas with an abundance of acorns or hickory nuts at this time of year. During June, the squirrel diet consists mostly of the buds and flowers of trees such as ash, elms, maples and sweet gum. They will also be feeding on some of the soft mast that matures during this time. In particular, they will key in on the fruit of the mulberry tree if available. When ripe, mulberry fruit is similar in shape and color to blackberries. In states where a spring/summer squirrel season is a tradition, the season is often referred to as the "mulberry season." Mulberry trees are found in every county in the Commonwealth, but are not abundant in any. However, if you can find a mulberry tree with fruit, there's a very good chance you'll find squirrels as well. Look for the trees in areas with rich, moist soils such as along streams. If you can't find one, just as in the fall, find where the squirrels are feeding and focus your effort there.

At one time, squirrels were the most popular game species in Virginia. In a Department survey of hunting license holders conducted in 1969, 65 percent reported having hunted squirrels. In 2005, only 32 percent hunted squirrels. Unlike the decline in popularity of hunting some other small game species, such as quail, the decline in squirrel hunting



©Ralph Henley

The new June squirrel hunting season will create additional hunting opportunities, not only for experienced hunters, but for many young hunters or first-timers who are looking for a quality outdoor experience. Warmer weather and the longer hours of daylight can make it a great time for pursuing the gray ghosts of the treetops.

is not due to a scarcity of the quarry. During any year, squirrels are our most abundant, yet underutilized, game species. Results of a roadside population survey conducted by the Department in August of each year indicate that the Virginia squirrel population has more than tripled since the survey began in 1988. The main reason for the decline in the popularity of squirrel hunting is the rise in popularity of hunting other big game species which were at one time not as common, especially deer.

It was also more common in the past for youngsters to be introduced to hunting by going squirrel hunting. In a Department survey conducted in 1999, 52 percent of hunters reported that the first species they hunted was



©Lloyd Hill



squirrel. Only 23 percent reported that deer was the first species that they hunted. However, this same survey revealed that of hunters who had introduced a youngster to hunting in the past 5 years, 66 percent took them deer hunting and only 20 percent took them squirrel hunting. So, why does this matter? What's wrong with deer hunting? It's not that there's anything wrong with deer hunting or even introducing youngsters to deer hunting. However, deer hunting may not always be the best way of introducing youth to the sport of hunting. Deer hunting tends to require a great deal of patience. There's a lot of sitting still and staying quiet, not something children typically enjoy. Squirrel hunting, on the other hand, doesn't require nearly the amount of patience that deer hunting does. There is also a much greater chance of a youngster harvesting an animal, having a good time, and hopefully, continuing to hunt on into adulthood.

Squirrels will likely be very abundant this June. The results of a survey of the squirrel population in August 2006 were the highest ever recorded. Plus, there was a bumper acorn crop this past fall. Therefore, all those squirrels likely had great survival rates and entered the first peak of the breeding season in prime condition turning out a lot of new squirrels. It will be a great time to take youngsters squirrel hunting. They'll be out of school and there's very little other hunting opportunity available at that time of year. So, spray on a little bug spray and take a youngster squirrel hunting on one of our Wildlife Management Areas this June.

Patrick Cook is the Small Game Project Leader for the Virginia Department of Game and Inland Fisheries.

Refer to the Department's current hunting regulation booklet for more information on the new June squirrel season or the Department's Web site to learn more about selected Wildlife Management Areas open to squirrel hunting and to download and print maps of the areas.

Northern Virginia F



Eight-hundred-acre Great Falls Park is located along the Potomac River, 14 miles upriver from Washington D.C., at the head of the Potomac River fall line. The park is part of the scenic and historical George Washington Memorial Parkway and a favorite among hikers, photographers and wildlife watchers.

Meet Vi

Parks



by Tee Clarkson
photos by ©Dwight Dyke

There is little out there I have found that compares to rolling out of a tent, shaking off lingering sleep with a cup of cowboy coffee boiled on an open flame, grabbing a fishing rod rigged the evening before with a topwater plug, sauntering down a dirt path to the bank of a lake and sailing a cast deep into a thin fog still hovering on the water's surface. Any fatigue not doused with the first mug of "Joe" disappears immediately with the flushing sound of a 3-pound largemouth stealing your plug from the slick reflection of dawn.

This is a common scene played out at Burke Lake in Fairfax, Virginia located just 25 miles from Washington, D.C. If you grew up in Virginia, or have lived here most of your life, odds are you have visited the Smithsonian Museums, the Washington Monument, the Vietnam Veteran's Memorial, along with many of the other historic attractions in down-

town Washington, D.C. What you may have missed, however, are the wealth of parks and outdoor activities that are located just down the road. A little time spent researching and one can combine the wonderful sightseeing and historic opportunities of Northern Virginia and Washington D.C. with his or her favorite outdoor pursuits.



Top: Covered in a fresh blanket of snow, Pohick Bay Regional Park is located 25 miles south of Washington D.C. in Fairfax County. The park offers boating, angling and camping opportunities. Above: Birdwatchers flock to the wildlife rich wetlands of Huntley Meadows Park in Fairfax County.

Virginia

Some of the highlights of Northern Virginia include Great Falls Park in McLean. Along with 15 miles of hiking trails, the 800-acre park offers perhaps the most spectacular view in Virginia, that of Great Falls on the Potomac River.

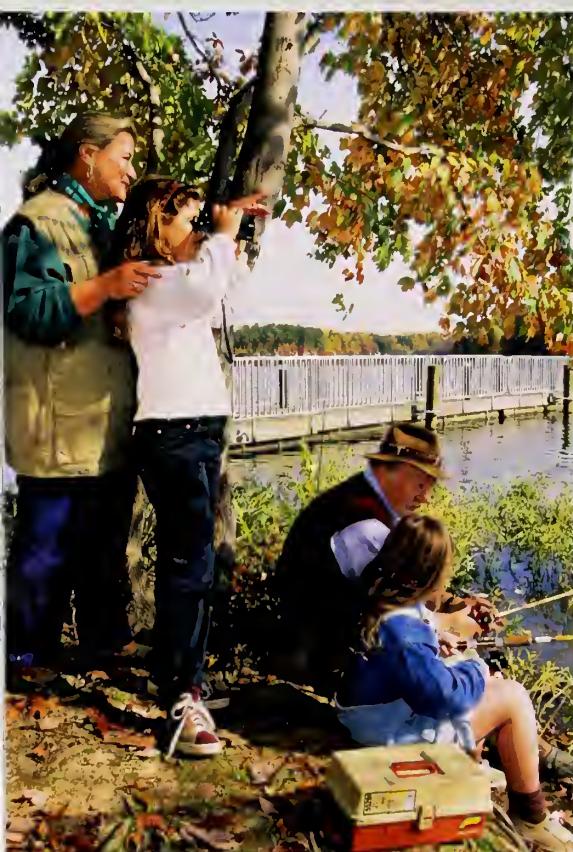
Pohick Bay Regional Park, located on the Potomac River's Mason Neck peninsula, provides a wealth of water activities like fishing, sailing and canoeing. It also plays home to various birds of prey like the bald eagle and osprey. The campgrounds and rustic cabins make for the perfect reprieve from the bustling world right down the road.

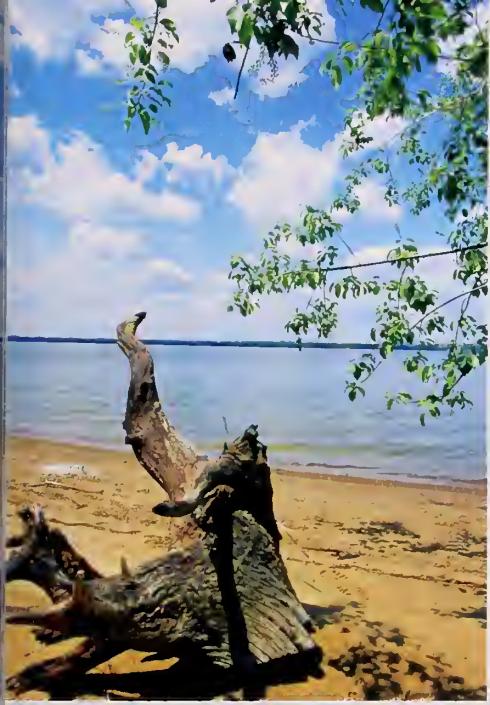
Burke Lake Park gets its name from the 218-acre lake in its center, which ranks top among the state's "small impoundments" in relative stock density of preferred fish. What this means is that the fishing is superb, especially for largemouth bass. The park also boasts one of the top ten best fitness trails in the nation, as well as hiking trails and campgrounds.

Mason Neck State Park offers access to the water of the tidal Potomac and its estuaries, while Washington



Above: George Washington Grist Mill Historic State Park is located off Mount Vernon Highway, Route 235, one-quarter mile south from U.S. 1, or 3 miles west of the Mt. Vernon estate. George Washington operated the grist mill on Dogue Run, where wheat and corn were ground into flour and meal. Lower left: Burke Lake is owned by the Virginia Department of Game and Inland Fisheries and is known as one of the best places in the state to catch a record size musky. The surrounding parkland comprising Burke Lake Park is owned by the Fairfax County Park Authority and open to hikers and wildlife enthusiasts. Below: Young sailing students enjoy a day on the Potomac River near Washington D.C.





For information on the parks mentioned in the article, and on Old Town Alexandria, check out some of the following Web sites:

Great Falls Park

<http://www.nps.gov/archive/gwmp/grfa/>

Pohick Bay Regional Park

<http://www.nvrpa.org/pohick-bay.html>

Burke Lake Park

<http://www.fairfaxcounty.gov/parks/burkelake/>

Mason Neck State Park

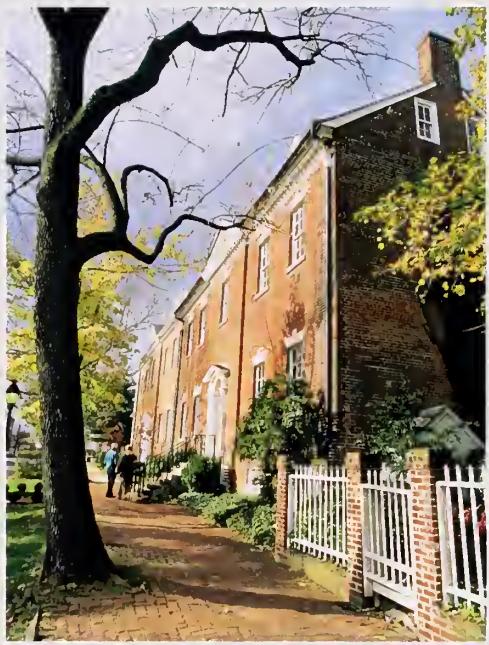
www.dcr.virginia.gov/state_parks/mas.shtm

Washington Grist Mill State Park

<http://www.powhatanva.com/parks%20northern.htm>

Old Town Alexandria

<http://oha.ci.alexandria.va.us/>
<http://www.funside.com/> □



Above: The boyhood home of General Robert E. Lee in Alexandria. Below: If you're looking for a scenic getaway with great sightseeing and loads of wonderful restaurants, try a leisurely stroll along the waterfront in Old Town Alexandria.

Tee Clarkson is an English teacher and in his spare time runs Virginia Fishing Adventures, a fishing camp for kids. For more information you can contact Tee at: tsclarkson@virginiafishingadventures.com.



Killer X



For 50 years the Southeastern Cooperative Wildlife Disease Study has been hard at work protecting wildlife by developing valuable wildlife health information that continues to assist wildlife biologists nationwide with population management.

by John R. Fischer

In July 1, 2007, the Southeastern Cooperative Wildlife Disease Study (SCWDS), based at the University of Georgia's College of Veterinary Medicine, will mark its 50th anniversary. Why should this interest people in Virginia? Because the Virginia Department of Game and Inland Fisheries (VDGIF) supports SCWDS as a member of this unique regional cooperative and receives its assistance with wildlife mortality investigations, diagnostic testing, research, consultation and training. This assistance is provided under the four primary SCWDS objectives: detect causes of sickness and death in wildlife; define the impact of diseases and parasites on wildlife populations; delineate disease relationships between wildlife and domestic animals, and determine the role of wildlife in the epidemiology of human diseases.

The Beginning

The SCWDS story began after World War II when game management agencies throughout the Southeast were pouring resources into restoration of white-tailed deer populations that were depleted during the pre-conservation era. The immediate results were limited but spectacular, and agencies were proud of the progress that had been made. However, a formidable disease threat to deer restoration soon emerged in 1949, when fishermen in several



Shortly after World War II, efforts were underway to focus on better wildlife management across the country. As a result, The Southeastern Cooperative Wildlife Disease Study (SCWDS) was formed. SCWDS was developed to assist wildlife biologists with investigating wildlife mortality, diagnostic testing, training, and gathering valuable wildlife health information.

states found large numbers of bloated deer carcasses along streams in the late summer and early fall. In some areas, more than 90 percent of the deer population fell victim to this mysterious disease of undetermined cause, known only as "Killer X." For-

tunately, Killer X vanished as quickly as it had appeared, and regional deer restoration programs flourished in the early 1950s.

But Killer X returned at the same time of year in 1954 and hit even harder in 1955, when heavy deer mortality occurred from the Appalachians into the Ozarks and grave concern arose for the future well-being of newly restored deer populations. Facilities were not available to investigate widespread deer deaths, and once again Killer X disappeared with colder weather and without identification of its cause. Sportsmen, conservationists and the general public found this situation untenable and wanted action; however, it

would be too costly for any single state to establish and maintain an organization with the expertise and capabilities to cope with future deer mortality crises.

After careful deliberation, it was agreed that a joint-state organization should be established for the region, and on July 1, 1957, the Southeastern Association of Game and Fish Commissioners (SEAGFC) founded the Southeastern Cooperative Deer Disease Study (SCDDS). Headquartered at the University of Georgia's College of Veterinary Medicine in Athens and directed by Dr. Frank A. Hayes, the SCDDS mission was to investigate



One of the first major projects that SCWDS became involved with 50 years ago was assisting with the management of white-tailed deer and deer diseases that affect their population.

the mysterious deer mortality. The initial annual budget of \$18,000 was provided in equal amounts from each of the 11 southeastern state wildlife management agencies, who were the original members of the co-operative. Member states later grew to 13, then to 15, and now number 17. Current members are the wildlife resource agencies of Alabama, Arkansas, Florida, Georgia, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Ohio, Puerto Rico, South Carolina, Tennessee, Virginia and West Virginia. The two newest members, Kansas and Ohio, are from the Midwestern Association of Fish and Wildlife Agencies.

Shortly after the inception of SCDDDS, those involved with it became increasingly aware of the dearth of information on white-tailed deer diseases. In addition to requests to develop data on deer diseases, there was increasing pressure on

SCDDDS' small staff to procure vital information on potential disease interrelationships between wild animals and humans or domestic animals. Recognizing the increasing demands upon the newly created Deer Disease Study, in 1960 the SEAGFC expanded its mission to encompass all wildlife species and changed its name to the Southeastern Cooperative Wildlife Disease Study (SCWDS), as it is known today. Additionally, through the interest and efforts of the SEAGFC, in 1963 the United States Congress enacted a recurring annual appropriation, administered through the U.S. Department of the Interior, to support basic wildlife disease research conducted by SCWDS. Through these means, efforts began to close information gaps about diseases in wild animals and elucidate disease interactions between wildlife and domestic animals and humans.

Looking For Answers

One of the first research projects designed to establish needed baseline health data was a parasite survey of deer throughout the Southeast

from 1961-1963. Continued research into deer parasites yielded a management tool in 1980 that often is used to correlate deer parasite numbers with local deer nutritional status and population health in the Southeast. This technique, known as the abomasal parasite count (APC), involves determining the average number of stomach worms in a representative sample of deer from a particular popula-





Lee Walker

Since the inception of SCWDS, white-tailed deer numbers have been on the rise. With a larger population comes a greater chance of health threats (above) and wildlife diseases. Having a better understanding of these concerns and the outcome, allow wildlife managers to better determine if local deer populations and other wildlife species are at risk.

tion. The APC value, combined with other indicators of deer health, such as lung worm numbers and body fat abundance, can indicate whether the local deer population already has, or is likely to develop, health problems because the deer density is high and may exceed the carrying capacity of the habitat. With this and other biologic information, wildlife managers can determine whether the local deer population has health risks and adjust harvest regulations accordingly. Over the years, SCWDS has performed nearly 700 deer herd health checks throughout the Southeast to assist wildlife biologists with deer population management.

Since the 1960s, SCWDS has conducted regional parasite surveys of numerous wild game bird species, including turkeys, quail, doves and grouse, as well as small game animals, such as cottontails and squirrels. Many projects have been conducted to better understand the role of wildlife, particularly deer, in the epidemiology of diseases and parasites in livestock. An early project to evaluate tropical cattle fever tick eradication showed it would not be necessary to exterminate deer in an area to accomplish this. Additional projects showed that deer were not important in the epidemiology of cattle diseases, such as brucellosis and anaplasmosis. All of these studies added significantly to the growing knowledge of diseases and parasites in wildlife, as well as potential health implications for domestic animals.

As knowledge expanded, it became apparent that native diseases and parasites were unlikely to devastate deer or other wildlife populations in the Southeast. Even Killer X, now known to be hemorrhagic disease (HD), which is caused by infection with either bluetongue or epizootic hemorrhagic disease viruses transmitted by insect vectors, did not significantly impact the Southeast's restoration programs as today's deer numbers readily attest. The onset of cold weather diminishes insect activity and accounts for the temporary disappearance of HD as autumn progresses. Hemorrhagic disease remains a significant disease of white-

tailed deer throughout much of the United States today and SCWDS continues to conduct research to better understand it. For example, recent HD research by SCWDS has shown that the likelihood of deer suffering severe clinical disease or dying, versus developing a mild or unapparent infection, depends on the geographic origin of the deer. In general, deer in the deeper portions of the South, such as Florida and Texas, are less likely to develop severe disease than deer to the North, particularly in the Midwest. This resistance in southern deer appears to be due to frequent exposure to the virus with maintenance of protective antibodies, as well as innate genetic resistance of the deer. This phenomenon has not only been demonstrated experimentally, but has been observed when captive deer from northern areas have been moved to southern facilities.

Unwanted Visitors

Early on, foreign animal diseases were recognized as a dangerous threat to valuable wildlife resources as well as livestock and poultry. Wildlife could be directly affected by the accidental or intentional introduction of exotic diseases such as rinderpest, heartwater, and foot-and-mouth disease (FMD). Or indirectly impacted if it became necessary to destroy large numbers of wild ani-



Lee Walker



Lee Walker



With the recent concerns about avian influenza, SCWDS and state wildlife agencies, such as VDGIF, are sampling waterfowl to gain a better understanding of how diseases affect wildlife, domestic animals and humans.

mals to prevent transmission to susceptible domestic and wild animals and to stamp out the introduced disease from the country. Recognizing this threat, a vital alliance between wildlife and domestic animal interests was officially established in 1967 when the United States Department of Agriculture (USDA) sponsored a 3-day Foreign and Emergency Disease Surveillance Training Program for wildlife biologists at the University of Georgia Center for Continuing Education. SCWDS conducted the program with assistance from internationally recognized disease experts. The third day was a test exercise in which wildlife biologists and USDA officials from 15 states reacted to a hypothetical introduction of FMD into a southeastern deer population. The USDA continues to sponsor this highly successful program each year, where wildlife managers, as well as state and federal veterinarians throughout the U.S. gather in Athens, Georgia, to learn from the world's experts about wildlife aspects of emergency disease preparedness, surveillance and response.

Unfortunately, exotic disease introductions have not always been hypothetical. Recognizing SCWDS' capabilities and the potential role of wildlife in foreign animal diseases,

the USDA enlisted SCWDS in the early 1970s to respond to Newcastle disease outbreaks among domestic poultry in California, Florida and Texas. In 1983-84, SCWDS personnel again were active members of the task force to eradicate highly pathogenic avian influenza virus from poultry in Maryland, New Jersey, Pennsylvania and Virginia. In all of these cases, SCWDS worked to capture and test wild birds in the outbreak area to determine if they were carrying or spreading the viruses; fortunately in all cases they were not. The relationship between SCWDS and USDA has been formalized through annual cooperative agreements since 1979.

An interesting phenomenon recognized during the Newcastle disease episode in California in 1972 is of key interest today as the world prepares for a possible influenza pandemic. Capture and testing of wild birds for Newcastle disease virus yielded the first information showing that wild birds, especially aquatic species, are major natural reservoirs for the avian influenza viruses that do not cause disease. This finding was further explored by scientists specializing in influenza research and has been essential in developing science-based surveillance strategies for highly pathogenic avian influenza viruses that have killed poultry, wild birds and humans in Asia, Africa and Europe.

Since its inception, SCWDS has conducted diagnostic testing and research on animal diseases that are

transmissible to humans. While examining wild animals that had been confiscated because they were being translocated illegally, SCWDS has detected foxes carrying a tapeworm that can be fatal to humans, but does not naturally occur in the Southeast, as well as rabid raccoons. Illegal translocation of raccoons in the 1970s is responsible for the expanding raccoon rabies outbreak that began in the Mid-Atlantic states, and now affects the entire eastern United States, and threatens the Midwest. SCWDS also was heavily involved in research to develop and field test the methods to successfully deliver oral rabies vaccines to free-ranging wild animals.

Currently, SCWDS is conducting extensive research into the ecology of avian influenza viruses in wild birds



Throughout the migratory waterfowl season VDGIF wildlife biologists have been trapping and taking samples from hundreds of wild birds as part of their surveillance for avian influenza viruses.

and the environment with the support and collaboration of the USDA, the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and others. The first NIH-funded SCWDS project began in the 1990s for the investigation of the role of deer in tick-borne human diseases known as ehrlichioses. Additional human-health oriented SCWDS projects have included Lyme disease and



Lee Walker

Testing for avian influenza viruses in waterfowl is painless and only takes a few minutes. A cloacal swab is taken from each bird and then shipped to the Virginia Department of Agriculture's Harrisonburg Laboratory. If any samples test positive the information is then relayed to the United States Department of Agriculture.

West Nile virus research, as well as surveys and experimental inoculations of deer with *E. coli* O157:H7, the bacterial organism first associated with undercooked ground beef that more recently sickened people who had consumed contaminated spinach. The frequent emergence of new diseases involving wildlife continues to provide opportunities for SCWDS to apply its unique expertise to better understand new diseases in order to develop prevention and control programs.

The Southeastern Cooperative Wildlife Disease Study has assembled an enviable list of accomplishments in its first 50 years. Many were attained without much public notice, while other SCWDS achievements have become well known. One of these is the CapChur™ gun that is used by wildlife biologists, veterinarians and others around the world to tranquilize wild animals. Frank A. Hayes, the first SCWDS Director, was a key member of the Georgia team that developed, tested and refined this essential management tool in the 1950s. SCWDS has participated in nationally publicized situations, too, such as the controversial Everglades Deer Crisis in 1982 in South Florida.

When high water threatened the deer herd, SCWDS conducted field investigations and provided vital deer health information to the Florida Game and Fresh Water Fish Commission, which then implemented a management plan that was based on sound science and that received high praise from the conservation community.

50 Years Later

Today, SCWDS employs approximately 30 faculty, staff and graduate students at its headquarters in Athens, Georgia. A satellite office operates in Florida where SCWDS has an ongoing year-round surveillance project for exotic ticks and other external parasites that can serve as vectors of foreign animal diseases. The SCWDS program has grown as de-

affected bald eagles, coots, ducks, geese and other birds at several southeastern reservoirs since the early 1990s; mapping of the expanding distribution of feral swine throughout the United States; elucidating the role of wildlife in several significant tick and insect-borne human diseases; and evaluating the efficiency of surveillance techniques for West Nile virus.

Since its establishment in 1957 as the first regional diagnostic and research center specifically for wildlife diseases, SCWDS has provided untold benefits to natural resources, wildlife managers, domestic animal and public health officials, and citizens and visitors throughout the Southeast. With its unique cooperative approach and pooling of resources, SCWDS has grown and



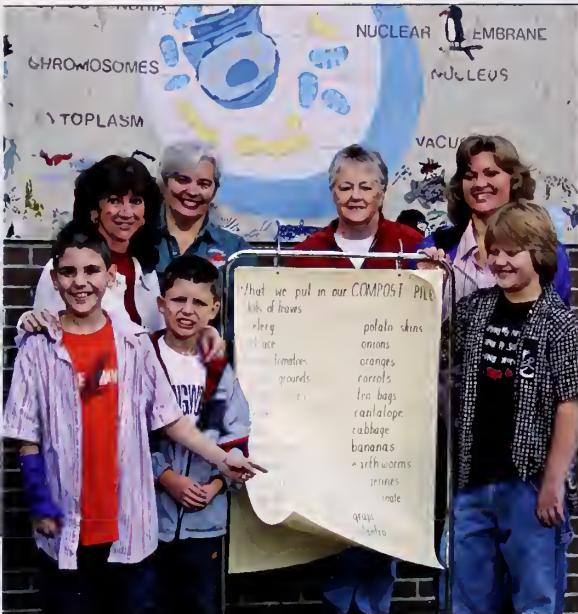
Monitoring and protecting the health of wild animals takes a lot of work. Thanks to the Southeastern Cooperative Wildlife Disease Study and their unique approach to cooperative support, states such as Virginia continue to assist and benefit in the well-being of all wildlife.

mand for wildlife health information has increased, and the list of diseases involving wildlife, such as avian influenza, chronic wasting disease, Lyme disease, West Nile virus (WNV), and others has continued to expand. A small sample of ongoing SCWDS projects includes researching the cause and epidemiology of avian vacuolar myelinopathy (AVM), a fatal brain disease that has

evolved by leveraging funds provided by an individual supporter with those of the other states, federal agencies, and granting organizations in order to develop and distribute wildlife health information and services of value to everyone. In this proven manner, SCWDS supporters, like the Virginia Department of Game and Inland Fisheries and the people of Virginia, receive much more bang for their bucks and everyone gets a bargain. □

John R. Fischer is the current Director of the Southeastern Cooperative Wildlife Disease Study (SCWDS) based at the University of Georgia's College of Veterinary Medicine.

Living Waters at



B.C. Charles Elementary hatches a fresh idea to culture their students into being better stewards of the environment.

Story and photos by Gail Brown

Don't bring your appetite when visiting friends at B.C. Charles Elementary School in Newport News. And don't even think about oyster stew!

The students in Cheryl Rowlands' and Susan Harner's fifth grade classrooms at B. C. Charles are serious about their efforts to raise oysters

for restoration. They work hard to help improve the health of the Chesapeake Bay. And they will be the first to tell you—their oysters aren't for eating!

It all started four years ago when Rowlands attended a week-long workshop at Mary Baldwin College. The workshop, designed to help teachers understand and implement the Chesapeake 2000 Agreement, provided attendees with a strong foundation in the historic and cultural development of the Bay, an understanding of the value of oysters as nature's ultimate filters, and ideas for classroom projects that address Virginia's Standards of Learning. Both Rowlands and Harner also attended

training sessions on oyster gardening provided by the Virginia Institute of Marine Science.

Inspired by their professional development experiences and excited about making science come alive for their students, Rowlands and Harner built a Taylor Float, a structure that, when submerged under water, provides a home for growing oysters. After filling out a simple (and free) application for oyster farming and

Left: Pat Barresi, VDGIF's Suzie Gilley, Jeanne Mousetis, and Dominique Pavusa enjoy getting kids outside and close to nature. Below: Students investigate life in their aquatic habitat.



Virginia Naturally

2 TIME



Top left: Virginia Naturally Schools integrate technology across curricula. Here teacher Susan Harner assists a student with computer research. Above: Students enjoy sharing their creative poems with teacher Cheryl Rowlands.

Below: Principal Pat Barresi shares a story with 2nd graders in the outdoor classroom. This area of the courtyard includes plants and trees indigenous to Virginia.

submitting it to the Virginia Marine Resources Commissions, they were ready to implement their unit of study, "Building Stewardship in Our Community." Since then, science lessons at B. C. Charles were transformed forever.

A language arts lesson in which students gather information about oysters from many sources is filled with enthusiastic chatter as the children get help with online research and share their work with their teachers and classmates.

Joey's "If I Were an Oyster" poem shows he understands the value of these bivalves when he says, "If I were an oyster, I would filter water at a rate of five liters per hour, and I would devour algae and nutrients, especially nitrogen and phosphorus." And Olivia's "I would be afraid of MSX and Dermo, and I would hide from the American Oyster Catcher" shows these young authors are developing a solid foundation of the environmental issues facing our Bay and ultimately the entire Commonwealth.

But what the students like best is their visit to the oyster garden at Lee-ward Marina and the field trip in May to transplant their oysters in the sanctuary at Felgate's Creek. Parents participate in activities at the marina, providing additional help and learning right along with their children. These teachers are not only leaders in promoting civic involvement and conservation of Virginia's natural resources, but leaders in promoting parental involvement and community support for their school as well.

At the marina parents and students work hard to clean the oysters and the float of algae and fouling (small organisms growing on the float), so that water can easily circulate through the Taylor Float, allowing the oysters to feed and grow. Dead oysters are removed and growth measurements of the remaining oysters are taken and recorded. The data they gather is important and will be transferred to a classroom computer and passed on to Oyster Reefkeepers.

Oyster Reefkeepers provide the students at B. C. Charles with materials and technical support for their oyster farming project. Donations, such as the secchi disc, which students use to test the turbidity or clarity of the water, and a refractometer, used to test the salinity, have helped move the project along. Students also record the temperature of the water as that, too, affects the rate at which the oysters grow. Healthy oysters filter sediment, cleanse the water of algae that can smother submerged grasses, and help trap pollutants such as nitrogen and phosphorus.

While the young scientists at the marina are learning that oysters face serious threats from pollution, disease and predators like the boring sponge and the flatworm, the "Garden Patrol," led by instructional assistant, Jeanne Mousetis, is busy cultivating a different kind of relationship with worms of a more helpful nature in their courtyard and outdoor classroom.

Complete with a compost tumbler and Can-O-Worms composting system, students at B. C. Charles understand that worms are model recy-



clers, turning organic waste such as leftover fruit and vegetables from the cafeteria into valuable fertilizer that is used in their vegetable and flower garden beds.

And these worms are treated like kings! Facing the long winter break, Stephen, a member of the Garden Patrol, asked mom, Dominique Pavusa, a courtyard volunteer, if they could take the worms home so he could feed them every few days. "It wasn't bad," said Pavusa. We couldn't just let them die." Stephen had another take on the experience. "We had to

Top: Compiling data provides an overview of conditions. Above left: Taylor Floats must be cleaned monthly. Above center: Oyster Reefkeepers provided equipment such as this refractometer. Above right: A variety of organisms are discovered, studied and returned to their homes.

keep them inside by the front door. Boy, were they smelly and we had company, too. I fed them shredded newspaper every few days."

What a great Mom! Parental support makes it possible for all students



the walls by former art teacher Gina Neil. There are limitless opportunities for teachers to bring students to a living environment when studying plants, soil, butterflies, weather and science Standards of Learning that relate to the natural world.

A recent visit from Virginia Department of Game and Inland Fisheries educator, Suzie Gilley, resulted in Principal Pat Barresi and the staff looking in a different way at a beautiful site adjacent to the school parking lot that contains a creek bed and a diversity of plants and trees. Plans to

Right: It takes teamwork to sort through all the oysters raised in the floats. Healthy oysters are measured and returned to their habitat. Each student measures over 100 oysters.



Top: The marina provides a scenic backdrop as families work together. Above: Science, math and civics go hand-in-hand when working to solve environmental problems.

to become actively involved in studying scientific processes like composting, rather than just taking notes about what they might do if they had the chance to become involved.

The courtyard, while it looks complete, is really a work in progress with its many learning centers, complete with study guides, painted on



take advantage of this natural habitat for insects and small animals would allow students in all grades to participate in "meaningful watershed experiences" just by walking across the parking lot. Gilley is one of many state resource personnel available to help determine how best to use this site.

As Isaiah, a fifth grader dedicated to the oyster restoration project said, "If we protect the oysters we protect ourselves." These wise words can easily relate to our efforts to protect any of our many wonderful—

Everyone benefits when families become involved in field experiences.

and necessary—natural resources. We can always count on the kids to show us the way.

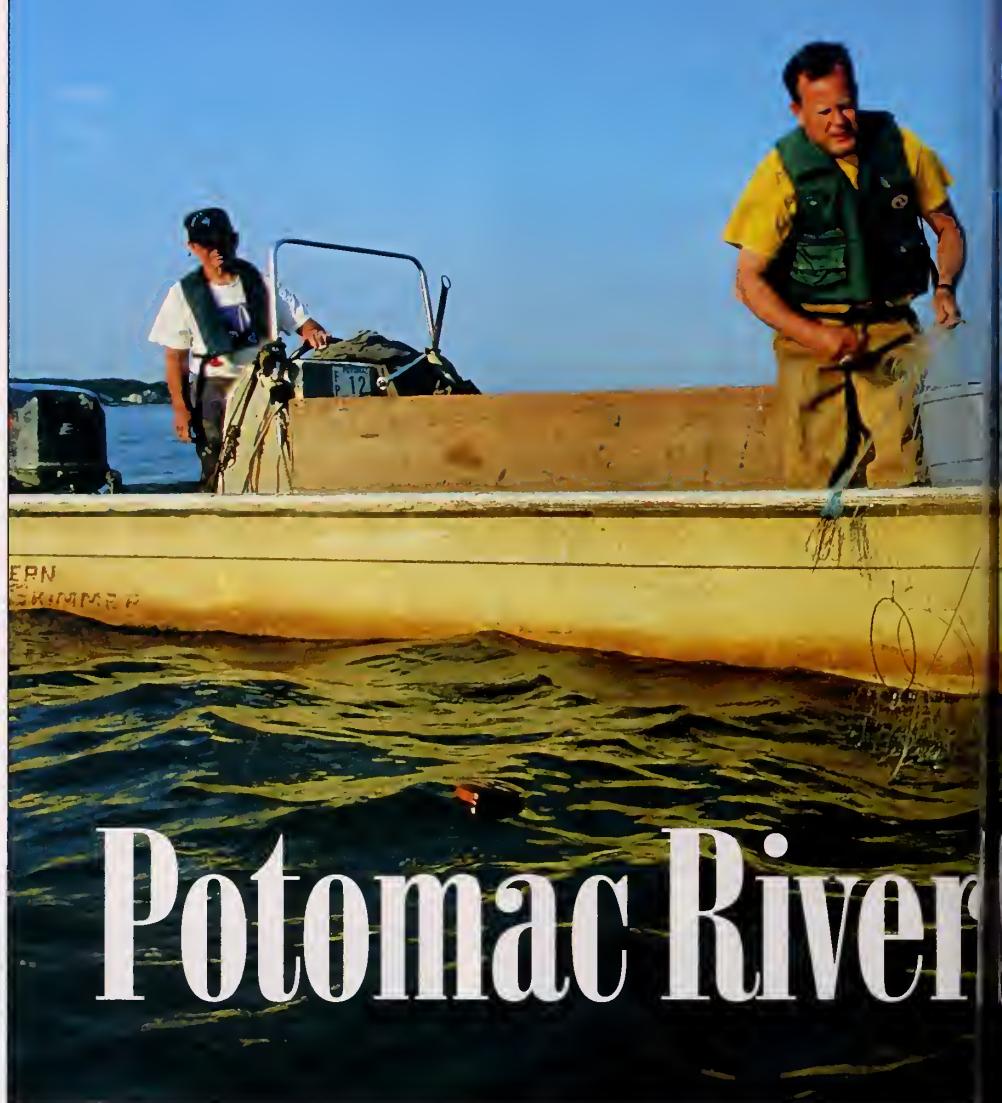
Now please, put that fork away.

Gail Brown is a retired principal for Chesterfield County Public Schools. She is a lifelong learner and educator. Her teaching and administrative experiences in grades K-12 have taught her that project-based environmental programs teach science standards, promote core values, and provide exciting educational experiences for the entire community.

The Times They Are A-Changin'

*If your time to you
Is worth savin'
Then you better start swimmin'
Or you'll sink like a stone*

-Bob Dylan



by Tee Clarkson
photos by ©Dwight Dyke

The times they are perpetually a changin'. So it stands to reason that the longer one has been around, the more a changin' they have seen. At 76 years old, Louis Harley has seen a lot of it from where he spends much of his time, the Potomac River. Louis and his son are the last full-time commercial watermen in Fairfax County, Virginia. Their family arrived in Fairfax County in 1820, most coming over from Ireland. Since then the men in the Harley family have had one job, farming the rich waters of the Potomac River.

When they first began, there were plenty of families and men that scraped out a tough living from the bounties of the Potomac. Now just two men remain, Louis and his son Mike, who is 41.

"The only thing that keeps us off the water," Louis says, "is the wind

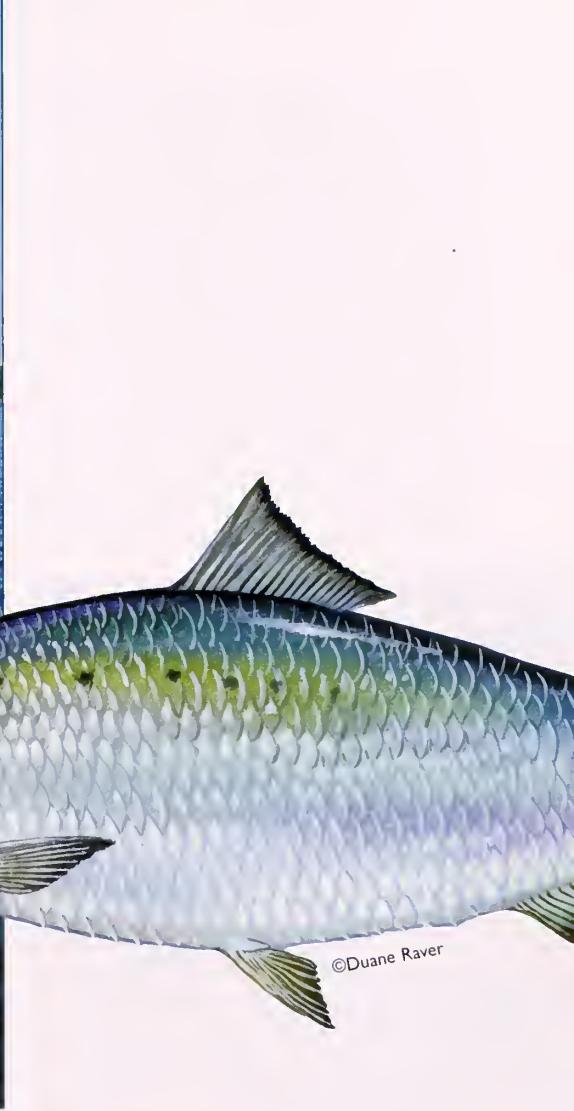


Above: Lifelong waterman, Louis Harley (stern) and Jim Cummins, Director of Living Resources for ICPRB (bow), net spawning American shad in floating-style gill nets that will be used as brood stock. Below: Brood stock are turned over to VDGIF fisheries biologists to conduct egg taking operations.

and the ice. Otherwise we are out there just about every day." The father and son team have been forced to adapt their practices in order to stay afloat in an ever-decreasing market for wild fish. Now their primary business is harvesting catfish and transporting them live in trucks to stock pay lakes in Georgia and North Carolina. They also catch striped bass, white and yellow perch, and are not averse to tossing out a few crab pots when the time is right. Over the last dozen years they have added another trick to their trade, capturing American shad to help with restora-



Shad



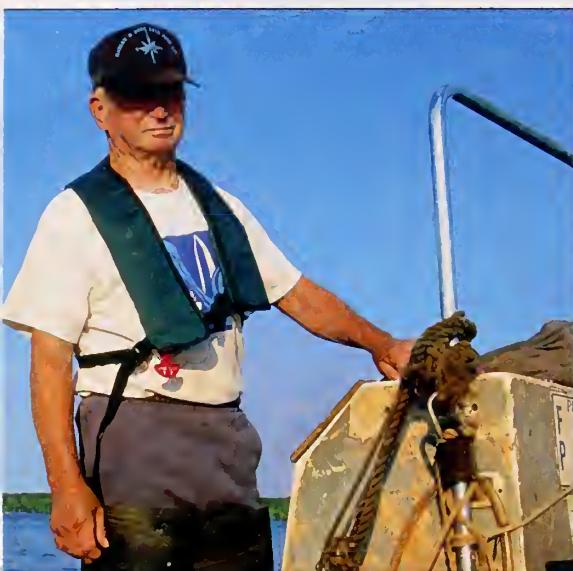
tion programs on the Potomac and Rappahannock rivers.

Anticipating a fish ladder at Brookmont Dam at Little Falls on the Potomac River, a dam that had previously prevented shad from reaching their native spawning grounds at Great Falls, The Interstate Commission on the Potomac River Basin (ICPRB), with help from the U.S. Fish and Wildlife Service and the Harrison Lake National Fish Hatchery, began a stocking program in 1995. American shad fry would be placed upstream of the dam in an attempt to restore the fish's natural spawning run. Jim Cummins, Director of Living

Nets are run at dusk to dark on ebb tides. This time of day is when most of the spawning activity occurs and the slack tide is when nets are most effective.

Resources for the ICPRB, contacted Louis and Mike to help catch the brood stock for the program.

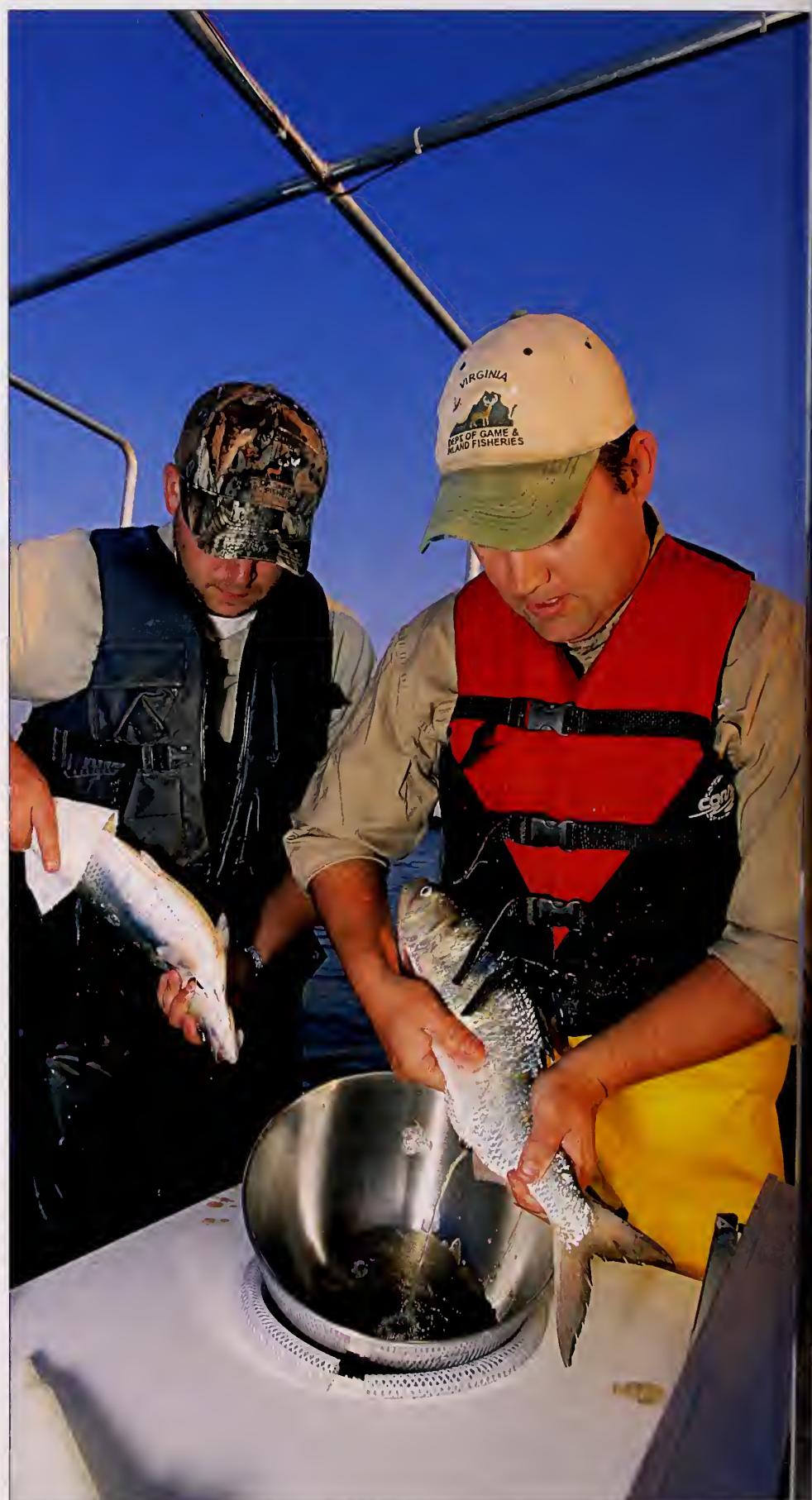
"The first year we went out, no one knew if there were any fish left at all," says Louis. Drifting gill nets in the 40s and 50s, Louis had harvested bushels and bushels of shad aboard boats with his father, uncles and grandfather, but as time progressed the American shad population had declined so much, due to various reasons, that there was a moratorium placed on them in the 1980s. That first year working with the ICPRB, 1995,



Louis and his son went out 13 times, setting drift nets on the last several hours of the moving tide, and caught 230 fish, which accounted for 1,200,000 eggs. After biologists mix milt and eggs on the boats, the fry are then raised for several weeks in hatcheries before being released back into the river.

Louis and Mike continued working with the restoration program for the next seven years, and by 2002 the shad population had rebounded on the Potomac River. The program had

Seventy-six-year-old Lewis Harley looks on as VDGIF fisheries biologists quickly work to hand strip both male and female American shad of sperm and eggs, where they are mixed together in collection bowls.



been so successful that the ICPRB partnered up with the Virginia Department of Game and Inland Fisheries (VDGIF), in an attempt to aid the struggling American shad population on the Rappahannock River. Having had success stocking American shad on the James River with a brood stock from the nearby Pamunkey, both agencies hoped to mimic the program on the Rappahannock, this time with the brood stock coming from the Potomac.

Last year it took only four hours to capture 250 American shad for

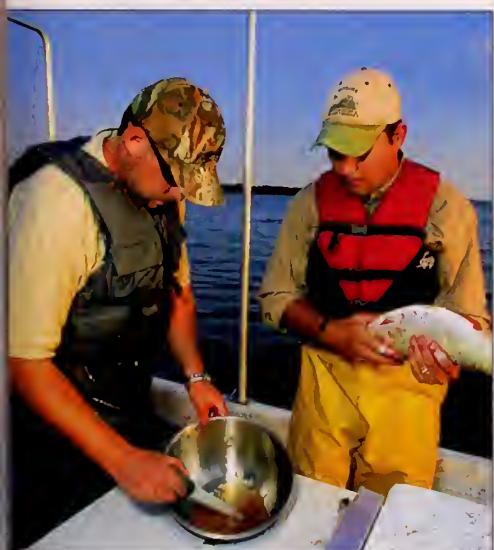
brood stock purposes on the Potomac River compared to the 13 trips it had taken just 11 years ago. "That's how much it has changed," says Louis.

Tom Gunter, a district biologist for VDGIF, who spearheaded the restoration program on the James River, knew the American shad population was low on the Rappahannock. In 2002, he completed creel surveys on both the James and Rappahannock rivers at the fall lines, surveying anglers' catches. On the James, American shad ranked third in numbers caught. There was one

American shad caught for every seven hickory shad. On the Rappahannock, American shad ranked last in numbers captured during the creel survey, with only one American caught for every 500 hickories. After receiving the go-ahead from genetic experts at Virginia Commonwealth University, the VDGIF and ICPRB launched the restoration program on the Rappahannock.

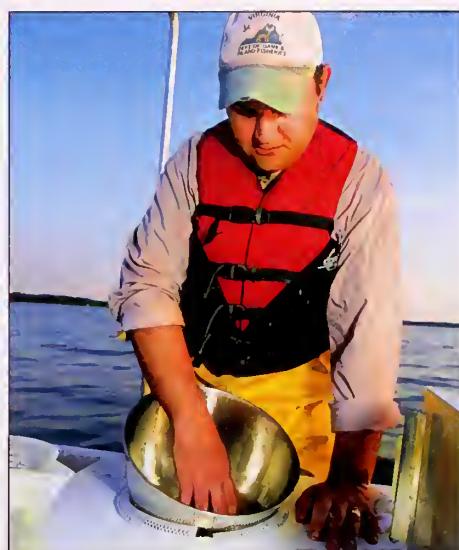
The first American shad fry were placed into the Rappahannock River in 2003. Since then approximately 14 million fry have been released. This spring the first of the fry released four years ago will have reached maturity and should return to the river to spawn. The VDGIF will complete a survey, recording the number of American shad captured in the Rappahannock this spring, to determine the effectiveness of the stocking program. Based on previous successes on the James River, Tom Gunter is hopeful that they will see similar returns on the Rappahannock.

The stocking has not just benefited the shad, it has helped school children from 22 schools in Virginia, Maryland and the District of Columbia better understand the workings of the natural world. Partnering with Living Classrooms and the Ches-



Top: Collection efforts are an excellent time for a quality outdoor educational experience. Above: Sperm is mixed with freshly stripped American shad eggs.

The sperm and eggs are mixed together in a dry state to insure the sperm is well distributed around the eggs.



Water is then added to the mix, which activates the sperm. The eggs will be fertilized in 30 seconds after adding water.

apeake Bay Foundation, the ICPRB has set up miniature hatcheries in classrooms and invited students, parents and teachers to aid with the American Shad Restoration Program.

"It has been the highlight of the project," says Jim Cummins. With the funding provided from the Chesapeake Bay Restoration Fund, which comes from the sales of "Save the Bay" license plates, students join the watermen and biologists on a Living Classroom boat, collecting shad and fertilizing eggs. They take eggs back to the miniature hatcheries in their classrooms, monitoring their progression using math and science skills and recording their findings in daily journals. Once the shad emerge from the eggs as fry, the students take a field trip to return the fish to the river.

"The teachers love seeing the kids get excited about the project," Jim Cummins comments. "And we like seeing the kids getting excited as well. We help inspire the kids, and they help inspire us."

The program comes to an end this year for Louis Harley after collecting one more brood stock on the Potomac. "This has been great for the river and great for the fish," he says. "It's been one of the most successful programs I have ever seen on the river, and the people that put it together should be commended."

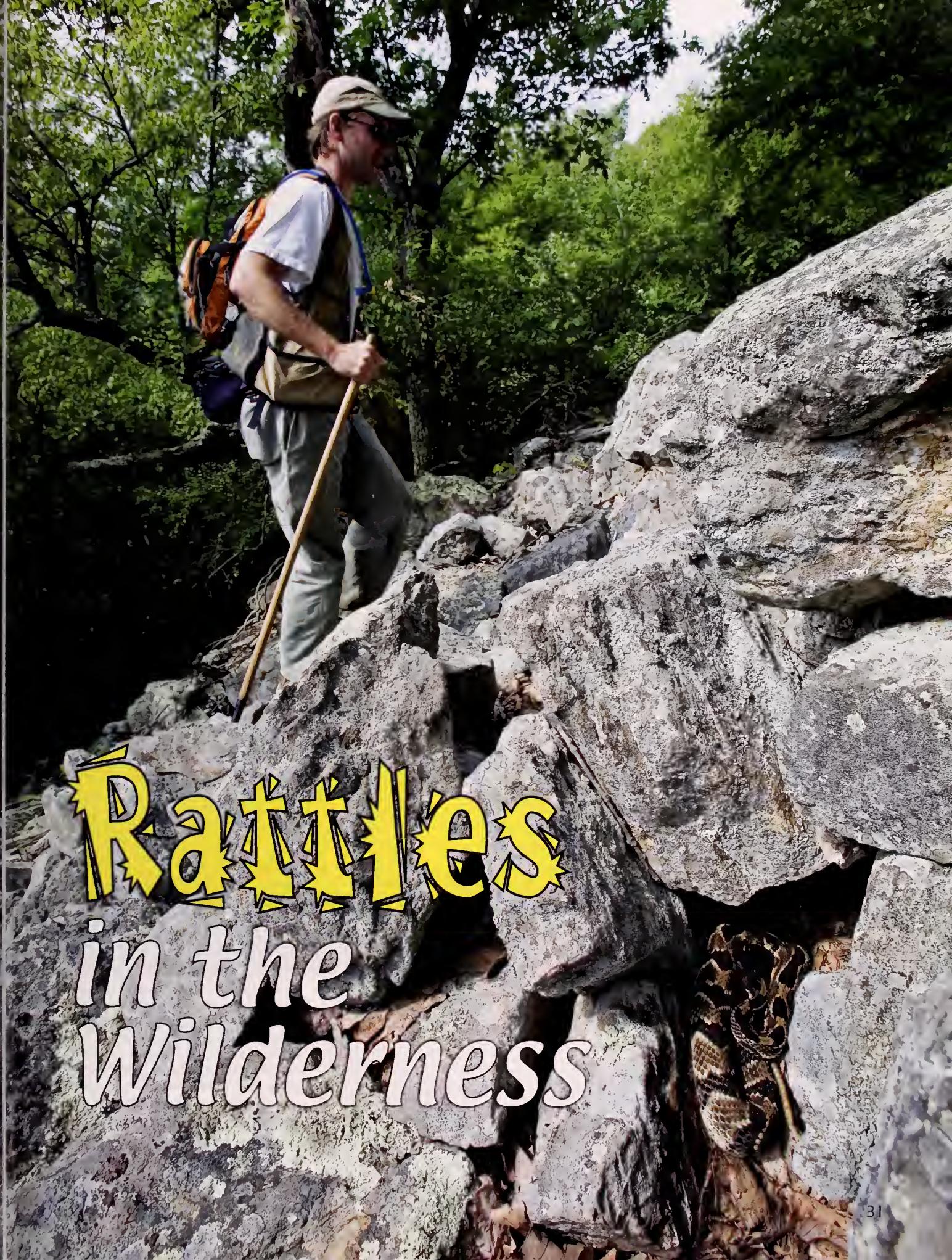
When asked how long he plans to keep working on the river, he responds, "I will keep doing it as long as I'm in good health. An old man can only do so much."

This man, along with the Interstate Commission on the Potomac River Basin and the Virginia Department of Game and Inland Fisheries, has done a tremendous amount for the American shad populations in the Potomac and Rappahannock rivers. □

Tee Clarkson is an English teacher and in his spare time runs Virginia Fishing Adventures, a fishing camp for kids. For more information you can contact Tee at: tsclarkson@virginiafishingadventures.com.



Fisheries biologists pour the fertilized eggs through a strainer to remove fish scales and other foreign matter. The eggs are collected in a water filled tub and allowed to water-harden.



Rattles in the Wilderness



Lee Walker

For hundreds of years fear and misconceptions have maligned one of Virginia's most misunderstood animals—the timber rattlesnake. But now, thanks to efforts by VDGIF, this important symbol of a diverse ecosystem is getting a public relations makeover.

by Michael J. Pinder
and David W. Garst

On a sunny September morning in the wilds of western Virginia, I prepare for my first rattlesnake survey. I know a necessity when working around such a dangerous animal is snake chaps, which I bought especially for this occasion. I'm about ready to put them on, when David remarks, "You're not going to need those." I suddenly think to myself, "Are you nuts? We're



Lee Walker

looking for rattlesnakes of all creatures! What's going to protect me if not these canvas chaps?" I don't utter a word, however. I've known David for years and his experience with this species vastly outweighs my fears.

After hiking up the mountain with lungs and sweat glands in overdrive, we stop at the base of a steep opening strewn with large sandstone

Top: Mike Pinder and David Garst negotiate the loose rocks on a mountainside in Southwest Virginia in search of timber rattlesnakes. Above: David stops to collect air temperature at a site inhabited by timber rattlesnakes. His study aims to learn more about the distribution and status of this unique reptile in the Commonwealth.

boulders. "This is where they'll be so stay alert, watch where you place your hands and feet, and follow me,"

David warns. "Hey, you won't have to tell me twice," I nervously reply. He begins by walking among the loose rocks. I obediently follow step for step.

We search the area for several minutes when at my feet, I hear the distinct buzzing sound of a rattlesnake. I freeze. With eyes as big as baseballs, I suddenly regret not wearing those chaps. I look at David, "What should I do?" In David's "been-there-done-that" tone, he tells me, "Don't worry about that snake. It's under that boulder you're standing on." I stare down and find that he's right. The snake is nowhere to be seen.

He goes on to explain that rattlesnakes are timid, and this one sensed our walking and quickly hid to a safer spot before rattling. Rattling is actually the third line of defense for the species. Its first is to remain undetected, and the second is to flee. Rattling is the snake's way of looking more intimidating and telling trespassers that he knows you're there so don't come any closer. Most people are bitten when they forget to heed or choose to ignore this warning.

David moves up the mountain as I attempt to stay close behind. It's not long before we see our first rattlesnake. Coiled under a rock overhang, it's a beautiful specimen, yellow with black chevron bands. The animal does not rattle or strike, but rather uncoils and expediently heads for cover. Like a train entering a tunnel, the snake disappears among the rocks, its rattle serving as the caboose.

In no time, we see another rattler, this one black with no yellow. Black, yellow, or variations of the two are color phases for the species. While individuals we've seen are obvious on the grayish rocks, this color pattern provides excellent camouflage on a background of leaves and sticks.

The purpose of our visit is more than just providing me the total rattlesnake experience. For the last year, David has been researching the species for his graduate degree at Virginia Tech. Virginia has two separate rattlesnake populations—the canebrake occurs in the southeastern



©Lynda Richardson

A female timber rattlesnake basks to regulate her body temperature by moving from sunny to shady areas.

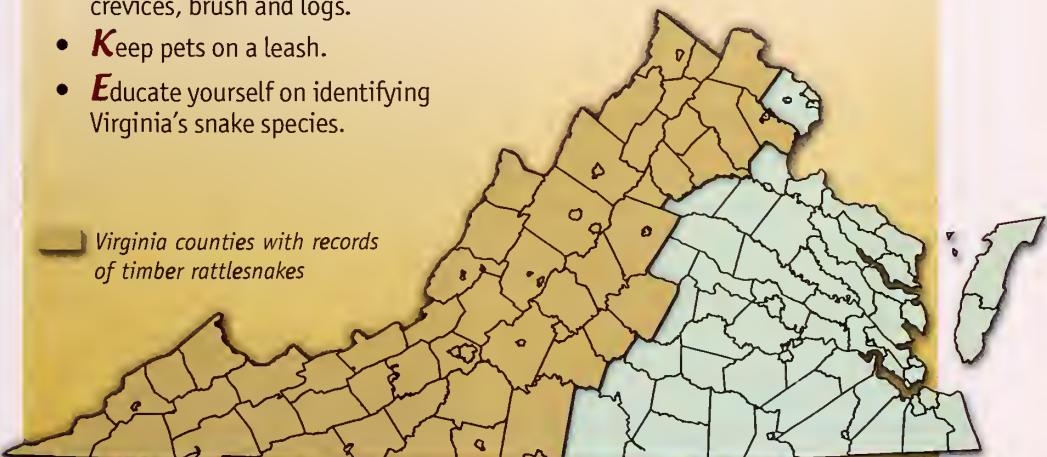
When in Rattlesnake Country

Hiking in areas with rattlesnakes can be a safe and rewarding experience when you follow these simple rules:

- **S**tay on established paths and trails.
- **N**ever attempt to handle, kill or agitate a rattlesnake. Most people are bitten when they do so.
- **A**void placing hands and feet in places you cannot see such as rock crevices, brush and logs.
- **K**eep pets on a leash.
- **E**ducate yourself on identifying Virginia's snake species.

Remember, finding a rattlesnake is an encounter with wilderness so appreciate it but leave it undisturbed.

Although timber rattlesnakes are known from the entire western half of Virginia, encounters with this elusive animal are rare.





Above: Snakes are individually marked on their rattle to provide a unique identifier. Because a new rattle segment is added every time the snake sheds, which can be several times a year, using the number of rattles to determine age of the snake is inaccurate. Right: Timber rattlesnakes have two phases: yellow (above), black (below), or variations of the two. Gender or geographic location has no relationship to color phase. Both phases provide excellent camouflage on the forest floor.



©David Garst



©David Garst

Coastal Plain and the timber in the western mountains. Declines in cane-brakes have resulted in their listing as a state endangered species. To prevent this same fate for timbers, David seeks to determine how they are faring and what can be done to secure their numbers. A U.S. Fish and Wildlife Service State Wildlife Grant, administered through the Virginia Department of Game and Inland Fisheries' Nongame and Endangered Species Program, funds his research.

The Virginia Department of Game and Inland Fisheries is interested in the timber rattlesnake because it plays vital roles in Virginia's mountain forests. Timbers help control numbers of rodents such as mice, chipmunks and squirrels. In turn, they are prey for red-tailed hawks, black racers, great horned owls, barred owls and opossums. Because they require large forested tracks with little or no human habitation, timber rattlesnakes truly represent some of the last remaining wilderness in the Commonwealth.

In order to get a clear picture of rattlesnake populations, David is focusing his efforts on finding sites called birthing rookeries. A rookery

Timber Rattlesnake Facts

The timber rattlesnake, copperhead and cottonmouth are the only venomous species in Virginia. All three have vertical cat-like pupils, a pit between each eye and nostril, and retractable fangs.

Because a timber rattlesnake's venom is mainly myotoxic and hemotoxic, its main function is to destroy muscle and burst red blood cells, which limits the amount of oxygen that can be carried.

Venom is used to safely kill prey such as mice and squirrels that could otherwise inflict serious injury on the snake during their capture.

A rattlesnake does not have ears but can sense vibrations from the ground through its body.

A single squirrel can provide enough nutrition for a rattlesnake to survive the entire year.

Rattlesnakes are known to travel between 1.5 and 2.5 miles from their den sites.

Rattles are added each time a rattlesnake sheds. They may shed several times a year, so aging individuals by their rattles is inaccurate.

The purpose of rattles is thought to have evolved to warn large animals like buffalos from stepping on them.

Since 1948, only five deaths in Virginia have been attributed to venomous snake bites. This is significantly less than annual deaths caused by dogs, horses and lightning strikes.

An image of a rattlesnake with the phrase "Don't Tread On Me" was a Revolutionary War flag. Benjamin Franklin compared characteristics of the rattlesnake to that of our fledgling nation.

Many species without rattles such as ratsnakes, kingsnakes and copperheads will shake their tails in dry leaves to make a rattling sound.

Rattlesnakes are a New World group known only from North, Central, and South America.

site is usually an open, rocky area on a south-facing slope. These unique areas are where pregnant females congregate before giving birth. Knowing their location and protecting the expecting mothers within is essential to conserving the species.

During the summer, pregnant females do not feed but instead use stored fat reserves to sustain their developing young. Because of the high



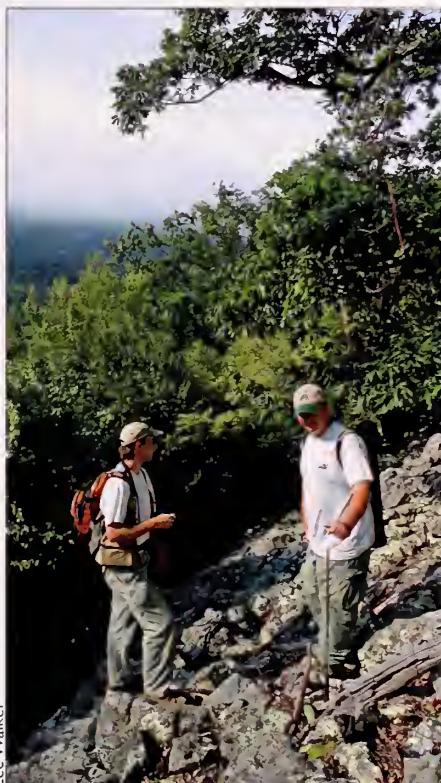
Above: In Virginia, most rattlesnakes give birth from August to mid-September. Newly born timbers, called neonates, are gray with black chevron bands. Right: After a hard day's work, the biologists pause to appreciate the beauty of this rugged, remote landscape before heading home. Below: Living in some of Virginia's last remote areas, these creatures are truly a symbol of wilderness.

metabolic cost, they only give birth on average every 3 years with some reproducing once every 5–6 years, depending on body condition. A rattlesnake will become reproductively active at approximately 6–8 years old and live to the ripe old age of 32. A mature, reproducing female is therefore a critical component of any population.

While negotiating the terrain, we strike the mother lode, literally. We come upon 10 large snakes quietly sunning themselves. Once we are noticed, they quickly retreat under a large boulder. David instructs me to stand on the same rock and then hands me the end of a tape measure. He heads up the mountain to record habitat data, and despite a slight hesitation, I follow his instructions and wait.

After a few minutes, I see a snake poke its head out from under my rock. I soon notice another, then an-

other, and then another. It isn't long before all the snakes we originally observed begin to crawl all around me. "David, they're coming out. What should I do now?" I hastily exclaim. He shouts down, "Don't do anything. They're not going to bother you." One by one the snakes slowly make their way back to their original resting spots ignoring my intrusion into their domain.



David returns informing me that this population hasn't seen many people. After I ask the obligatory reason why, he explains that in many areas birthing rookeries have been plundered and the snakes killed or

removed, causing the remaining survivors to be very skittish. In addition to being killed outright, rattlesnake numbers have declined because of loss of habitat by human encroachment activities such as subdivisions, roads, powerlines and mountaintop coal mining.

Among the larger snakes we observe several smaller gray ones about 12 inches in length, each with a small button on the tail. "These are neonate timber rattlesnakes probably 24–48 hours old," indicates David. Rattlesnakes provide no parental care after giving birth to 3–16 live young. The young stay near the rookery until they shed for the first time, which is usually 6–10 days. After that they travel into the surrounding woods and try to capture a small rodent for their first meal. Prey is killed with the same potent venom used by the adults. Even with this advantage, starvation, predation and failure to find a suitable winter den results in less than 45 percent survival of young.

Following several hours of collecting data, we hike down the mountain to our waiting vehicle. I open the hatch and see my unused snake chaps lying on the back seat. I chuckle thinking back to my misconceptions from the beginning of the day and my newly found appreciation for these maligned creatures. I now realize these animals do not deserve their reputations. I've come to understand that timber rattlesnakes, like so much of our wildlife, are an integral part of a healthy, diverse and vibrant forest ecosystem. To fulfill this purpose, we will have to set aside our fears and learn to value this symbol of Virginia's wilderness. □

Mike Pinder is Wildlife Diversity Project Manager for Southwest Virginia. He works with a wide variety of species groups that includes freshwater mussels, nongame fish, amphibians, and reptiles. He is co-author of the Department's publication "A Guide to the Snakes of Virginia."

David Garst graduated from Virginia Tech in 2003 and is currently working on his Masters Degree in Fisheries and Wildlife Sciences there. David's Masters work is looking at the distribution of timber rattlesnakes in Virginia and using GIS to create habitat models.



2007 Outdoor Calendar of Events

May 17: Spring gobbler season closes.

May 19: NWTF Family Outdoor Days, Colonial Downs, New Kent. For more information, call 804-367-0656 or go to the Department's Web site.

June 16-19: 80th Annual Outdoor Writers Association of America Conference, Hotel Roanoke & Conference Center, Roanoke. For more information, www.owaa.org/Conf_2007/

June 26: Float Fishing the James, James River State Park, Buckingham County. For more information, call 804-367-6778 or go to the Department's Web site.

July 17: Smallmouth Fishing Workshop, Floating the New River at Bisset Park, Radford. For more information, call 804-367-6778 or go to the Department's Web site.

August 7: Flat Out Catfishing Clinic, Pony Pasture, Richmond. For more information, call 804-367-6778 or go to the Department's Web site.



Kids Say the Most Incriminating Things

by Jennifer Worrell

Gloucester County Game Warden Michael Morris has learned early on in his career that children often

paint the truest picture of their parents' intentions. The officer was checking fishing licenses on a routine patrol when he came upon a father and his young son casting into one of the local rivers. Officer Morris checked the man's license and fish cooler and found that the fisherman was in total compliance with the law. The warden wished the pair well and headed back to his patrol vehicle.

As he opened the door, Morris heard the little boy call out, "We're going to keep all the rockfish we catch as soon as you leave!"

Morris could see the father's face flush bright red as he climbed into the truck.

"He's only four!" cried the errant fisherman.

Morris just shook his head, knowing he had a future violator already in the making. □

Virginia Chapter of NWTF Annual Youth Writing Contest

The Virginia State Chapter of the National Wild Turkey Federation would like to invite young adults 17 years or younger to enter the 5th Annual Youth Hunting Essay Contest. To enter this year's contest, submit your original story of "The Hunt" and include a photograph of yourself. Your story may be about one or more hunting trips and can include people or groups that inspired you to participate in the hunting activities. Stories do not have to include the harvesting of wild game.

First place winners in last year's Youth Hunting Essay Contest were Alex McCann, in the 13- to 17-year-old category and Dillion Oakwood Frazier, 12 and under.

Prizes will be awarded (1st place \$250, 2nd place \$150 and 3rd place

\$50) in two categories 12 and under and 13 to 17 years old. Entries must be postmarked by May 31, 2007. Send entries to: William Hall, 1626 Jacktown Road, Lexington, VA 24450 or call 540-426-2636.

The Big Turkey Hunt

by Alex McCann

It started off like any other season. My dad and I woke up early and headed over to the pines where we always hunt. It wasn't but a few minutes after we got into the woods, that we already had a turkey gobbling. We set up our decoys, and got back in the blind. We began to call, and we called at that turkey for an hour and a half, but he never would call back at us. However, he would gobble at every other noise that came from the creatures in the woods. We then decided that his nickname would be "Grumpy."

After returning from the woods, I knew the hunt for "Mr. Grumpy" was on.

I hunted all of my spring break, and every weekend thereafter, but still had no luck at getting Mr. Grumpy. He seemed too clever for this 13-year-old boy.

The Saturday before the season ended, I had the chance of a lifetime. Up at 5:00 a.m., dressed and toting my Mossberg 20 gauge, I headed out the door. Walking down the road to the woods, I heard "Mr. Grumpy" gobbling at the same spot I'd heard him gobbling that first morning with my dad. Setting up higher in the pines than I normally do, I began to call.

After a short time I had three gobblers right on top of me. Sitting quietly, I listened to the popping sound of the turkey's warning call. Beside me, in a field of baby pine trees, I saw three strutting gobblers moving past only 5 yards away. I didn't want to

turn and shoot through the pines because I knew I couldn't hit one through the thick brush. So I sat patiently until they passed, hoping to get a better shot. I became anxious, and walked over to the spot where I'd seen the turkeys pass and right before my eyes stood Mr. Grumpy. As he turned and ran, I became too excited and shot at him and missed.

Later that afternoon, I was feeling disappointed about missing the old fella. I decided to give it another try, this time taking my 7-year-old cousin, Bucky, with me. For Bucky, this would be his first time for the big turkey hunt. Heading to the same spot as I had been that morning, I wasn't expecting to see or even hear anything. Bucky and I sat down between two fallen trees and began our wait. After about two hours, I began to wrap up the hunt because I knew Bucky was getting restless and bored. I told him that I would do one last call with my box call.

I let out a big yelp and off in the distance was the familiar gobble of "Mr. Grumpy." I told Bucky to stay still, that I was going to move to the tree in front of me to get a better shot. I covered Bucky with pine limbs so he wouldn't be seen. After 10 more minutes of calling and listening, I turned to my right and who did I see but Old Grumpy himself. A half a minute or so later, two more gobblers joined him. I knew I couldn't use my box call because if I had moved they were sure to see me. It was hard to contain myself. With my other hand over my mouth, I yelled the most natural yelp I could muster. I couldn't believe it when Mr. Grumpy came around the tree and stopped 20 yards from me. Carefully aiming my shotgun, "POW," Mr. Grumpy fell to the ground. □

Report Wildlife Violations
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1-804-367-1076



by Beth Hester

North American Mushrooms: A Field Guide to Edible and Inedible Fungi
Dr. Orson K. Miller, Jr. and
Hope H. Miller
2006, Falcon/Globe Pequot Press
www.falcon.com

Until I read through *North American Mushrooms: A Field Guide to Edible and Inedible Fungi*, my knowledge of the world of wild mushrooms had been confined to my interpretation of certain sections of *Alice in Wonderland*, and by the incorporation of exotic mushrooms into the recipes of the famous cooks I watched on the FoodTV Network. This, despite the fact that the gathering of edible wild mushrooms has been a time honored way of connecting with Mother Nature, as well as a good way to supplement the usual groceries.

All that being said, the study of fungi both edible and inedible necessitates a certain seriousness of approach, not only to fully appreciate the sheer variety of species, but also to reduce the potential for an illness due to ingesting the wrong mushroom. I cannot imagine a better book to guide both experts and novices.

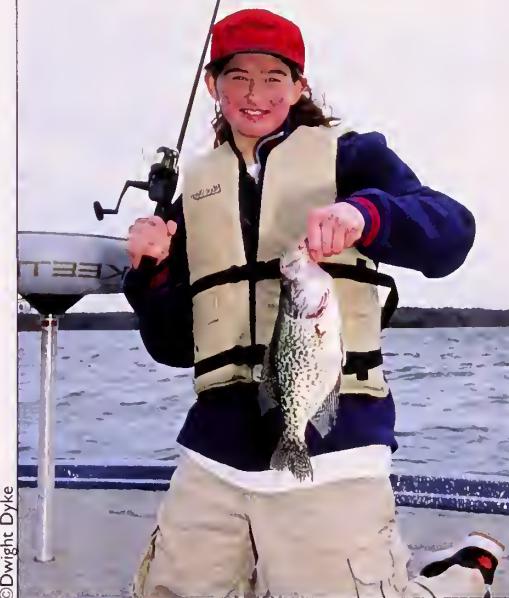
The authors are experts in their field. Dr. Orson Miller is one of the preeminent mycologists in the United States. A bit of local interest, Dr. Miller is a Professor Emeritus of Botany and Curator of Fungi from Virginia Tech. Hope Miller is also a mushroom expert, and author of a cookbook featuring mushrooms.

The guide has a sturdy, water resistant cover, and a five-inch rule has been printed on the back. There are more than 600 color photographs, detailed line drawings, and color-coded tabs to assist in the often subtle task of field identification. If that weren't enough reason to purchase this

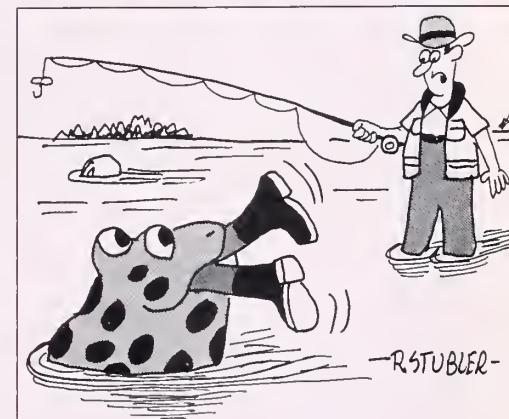
guide, each section highlights habitat and distribution, special identifying features, and toxicology warnings. Also included are suggestions for culinary use.

I have read my share of field guides, and *North American Mushrooms: A Field Guide to Edible and Inedible Fungi* is one of the most user-friendly guides I've encountered to date. Highly recommended. □

Free Freshwater Fishing Days June 1-3, 2007



©Dwight Dyke



I told you, Al. You should have taken those flies off your hat.

RECIPES

by Joan Cone

Why Starvation in Jamestown?



©Dwight Dyke



As part of the 400th anniversary of the founding of Jamestown, historical interpreters offer visitors to James Fort a look at what life may have been like for the first settlers of 1607. Having brought only limited supplies with them from England, the settlers quickly found that starvation was a constant threat and when it came to food nothing went to waste.

Jamestown Natives in 1607 lived well. So, why did so many of the new settlers die?

The best source on early Jamestown is by Captain John Smith. I read through "The Complete Works of John Smith Volume I," in order to find out what fish, game and other foods were available to the early settlers. The following quotes are from Volume I of his book.

"In somer no place affordeth more plentie of Sturgeon, nor in winter more abundance of fowle, especially in the time of frost. There was once taken 52 Sturgeons at a draught (drawing the net) at another draught 68."..."In the small rivers all the yeare there is good plentie of small fish so that with hookes those that would take paines had sufficient."

"In some parts were found Chestnuts — Plumbs there are 3 sorts." John Smith also mentions "Putchanins (persimmons), Cherries (wild black cherry), Crabs" (crab apples) — "During Somer there are either strawberries which ripen in April; or mulberries which ripen in May and June." Other berries Smith mentions are raspberries, grapes and huckleberries.

"Of beastes the chiefe # 2 are Deare, nothing differing from ours. There is a beast they call Aroughcun (Raccoon). — Their Squirrels some are neare as greate as our smallest sort of wild rabbits." Other animals described by Smith were "Opassom, Beares, Beaver, Otters, Foxes" and others.

The following was written about game birds: "Partridges there are little bigger than our Quailes, wilde Turkies are as bigge as our tame."

"In winter there are great plenty of Swans, Craynes—Hurons, Geese, Brants, Ducke, Wigeon, Dotterell (Rails), Oxies, Parrots and Pigeons."

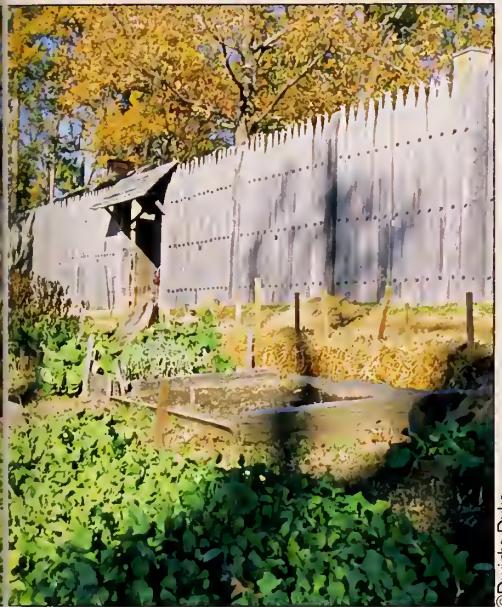
"Offish we were best acquainted with Sturgeon, Grampus, Porpus, Seales, Stingraies, whose tailes are very dangerous. Brettes (Flounder), mullets, white Salmonds, Trouts (sea trout), Soles, Plaice, Herrings, Conyfish, Rockfish,

Eeles, Lampreyes, Catfish, Shades (Shad), Pearch of 3 sorts, Crabs, Shrimps, Crevises (Crayfish), Oysters, Cocles and Mussels."

With this abundance of game, fish, fruits and vegetables, which greeted the English colony in 1607, it is incredible that they nearly starved. The colonists would never have survived without help from the Indians. Chief

Powhatan taught the new immigrants how to plant corn and other vegetables and how to make fish traps. Corn was a most useful grain, as it provided a year-round food that could be eaten fresh or dried for use in baking and cooking.

Most cooking done by the Jamestown settlers had to be done over an open fire. Some had kettles



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The tools and cooking objects used by historical interpreters at James Fort demonstrate just how difficult conditions were for those who lived at Jamestown in the early 1600s. Skilled interpreters also plant and cultivate food and cash crops such as tobacco. On-going carpentry projects using authentic-style tools of the era offer visitors a chance to engage in domestic activities, such as sewing, meal preparation and cooking.

which could have been hung over the fire or used in a hearth, if they had one.

These early Colonial recipes found in "Hearthsider Cooking," by Nancy Carter Crump, will give you some idea how cooking might have been done in Jamestown.

Roasted Oysters

Scrub oysters thoroughly under clear water.

Lay oysters close to but not in fire and cover them with hot ashes.

When oysters are done their shells will begin to open.

Using fireplace tongs, carefully



Fried Fish

2 to 3 pounds flounder or similar fish
Salt

1 to 2 egg yolks, slightly beaten
Freshly ground bread crumbs as needed
Butter and lard for frying

Scale, clean and if desired, filet fish. Salt lightly.

Dip fish first into egg yolk and then into bread crumbs, coating well on each side.

In a frying pan set over hot coals, melt butter and lard (3 parts butter to 1 part lard) until sizzling hot.

Carefully add fish (use a spatula or sieve) and fry until done, 3 to 5 minutes on each side. Remove from fire and drain.

Wild Duck

1 wild duck

Salt

Melted lard for basting

Drippings from roasted duck

3/4 cup port wine

1/8 teaspoon cayenne pepper

Dress and clean duck thoroughly. Sprinkle with salt. Spit and roast before hot, clear fire, about 20 minutes, basting occasionally with melted lard.

Carefully remove duck from spit, put on platter and keep warm while preparing sauce.

Pour off up to 1 cup drippings and combine in a saucepan with wine and cayenne pepper. Set pan on trivet over coals and bring to a boil. Taste, adding salt if needed. Boil briefly to reduce sauce. Pour into chafing dish.

To serve, carve duck in pieces at table and put in bubbling sauce. □

References

The Complete Works of John Smith, Volume I, pages 146 to 156. Published in 1986 by The University of North Carolina Press.

Hearthsider Cooking, by Nancy Carter Crump, published by EPM Publications, Inc., 1986.

*Mark your calendar to visit
Jamestown Settlement, Historic
Jamestowne and Anniversary Park on
May 11-13, 2007, for America's
Anniversary Weekend. For more information visit: www.historyisfun.org.*

Right: Captain John Smith helped establish the trading of goods from Jamestown for food from the Powhatan Indians



©Dwight Dyke



©Dwight Dyke

On The Water

by Jim Crosby



Warning: Your Boat Gas Has Changed!

Your boat's gasoline is changing in many ways that could cause some serious problems. Your attention to this detail could prevent, at least, the serious problems that could lie ahead.

First and foremost, check the pump before you top off your boat's gas tank. If a notice on the pump alerts you to ethanol being added to the fuel, do not put it in your boat unless your boat manufacturer specifically has stated it is suitable for the use of an alcohol additive. I am told that E-10 fuel is being distributed in metro markets like Richmond, Norfolk and the Chesapeake market area. E-10 fuel is gasoline with 10 percent ethanol added.

The first concern: The most deadly outcome of introducing E-10 fuel into your boat is the potential danger of the corn-based alcohol's corrosive, solvent-like characteristics removing resins and plasticizers from some plastics and rubber materials. Most significantly, it damages the resins in fiberglass fuel tanks. Most common types of epoxy and polyester resin are not ethanol-resistant.

The second concern: In addition, ethanol acts as a detergent that loosens rust, debris and other gunk inside your tank and fuel lines. So, if it doesn't dissolve a hole in your gas tank and dump your fuel into the bilge, it will probably clog your filter or gaslines to the point your engine will sputter to a stop.

The third concern: Ethanol is hygroscopic—it absorbs water and will mix more easily with water than gas. Up to 10% of your fuel could become a water-ethanol mix and the liquid could undergo "phase separation"

forming a top layer of pure low-octane gas and a bottom layer of water-saturated ethanol. Since the fuel pick-up is located at the bottom of the tank, water contaminated fuel can be sent to your engine to cause it to run badly or not at all.

This low octane fuel causes problems in four-stroke engines and can cause damage in two-stroke outboards from lean fuel and lack of in-fuel lubrication due to the presence of the water.

The fourth concern: Ethanol has a short six-week shelf life, and the octane begins to decrease thereafter. While this is a minor concern in a car, this deterioration is a bigger problem in infrequently used boats and worse during winter lay-up.

Some states have passed legislation that mandates the use of E-10 fuel throughout. This makes it even more important to check the pumps before you fill your boat when traveling. Bills have been introduced in Virginia to accomplish the same thing, however none have been passed into law at this time.

Eventually, the boating industry will catch up with this trend and produce boats that can cope with the mixing of alcohol-based fuels. In the meantime, we need to monitor the fuel we are putting into our current watercraft and stay safe. All combustible fuels are dangerous and we must contain and use them in a safe manner on land or water, but especially on water. □

National Safe Boating Week

May 19-25, 2007



Photo Tips

by Lynda Richardson

Spring Cleaning Your Image Sensor – Part 2

In the April "Photo Tips" column, we discussed a basic method for cleaning a digital SLR camera image sensor using a "Rocket" which blows air lightly across the sensor. But sometimes you need more than just a few puffs of air.

My first suggestion for cleaning any digital SLR camera's image sensor is to always read the camera manual and see what is recommended by the camera manufacturer. If you find the recommendation unsatisfactory, you do have other options. My only caution here is that these suggestions should be taken "at your own risk."

There are numerous new sensor cleaning devices on the market today. I haven't tried all of them but I have tried the LensPen Combo Kit which has worked well for me. A LensPen is a pen-like device that has a retractable brush at one end and a cap covered, triangular, felt piece on the other. There are two sizes of LensPens, which come in the kit, but I tend to favor the large light grey one for sensor cleaning. Pick one, or both, and use it / them ONLY for sensor cleaning and nothing else!! I haven't used the brush ends for anything yet.

When I decide to use the LensPen, I follow these steps:

1. Tilt the camera so it is facing downward and remove the lens / body cap from the camera.

2. Grip the camera in your non-dominant hand and, with your other hand, hold a Rocket blower and blow out the opening of the camera.

3. Then, trigger the function which allows you to gain access to the sensor (don't forget to make sure you have plenty of battery power) and blow that area out too.

4. NEVER allow the tip of the rocket to go past the front of the camera.

5. Next, pull out either size LensPen and remove the cap covering the felt part and tamp it gently (do not rub) 10 to 20 times on a micro-fiber cloth until a little bit of graphite is seen

on the cloth. (You can prepare the Pen before beginning).

6. SLOWLY and CAREFULLY, ease the felt tip of the Lens Pen into the body of the camera and carefully place it on the center of the image sensor;

7. Rub the felt tip carefully, but fairly firmly, back and forth across the sensor.

8. Work from the center to the edges and lastly, work around the outside edge of the sensor.

9. Take your time, work in bright light, and always keep the camera tilted downward to avoid extra dust from entering the camera opening.

10. Once you are done, remove the LensPen and turn off the camera or whatever your camera manufacturer recommends at the end of sensor cleaning. PSEW. That wasn't too scary!

Now, take a few test shots against a clean, bright background, at a small aperture like f16, do not focus the shot, overexpose by one to one and a half stops, and then check for any remaining dust specks. If you don't like what you see, do it all over again!

You can purchase a LensPen

Combo Kit from various companies for around \$20 but I would suggest purchasing it from Art Morris at www.birdsasart.com.

When you buy a LensPen, from Art Morris you will receive, via e-mail, a much more detailed write up on sensor cleaning which is worth its weight in gold!

Other sensor cleaning devices you might want to investigate are the new SensorScope System from Delkin Devices, Inc for \$189.99 (www.delkin.com) and the oddly named "Arctic Butterfly" SL 700 Sensor Brush from VisibleDust at \$65 (www.visibledust.com). In addition, more information about sensor cleaning can be found at www.sensorcleaning.com.

Good luck on cleaning your camera sensor and happy shooting! □

To enter, submit one of your best images to "Image of the Month," Virginia Wildlife Magazine, P. O. Box 11104, (4010 West Broad Street), Richmond, VA, 23230-1104. Please include information regarding how and where the image was captured, and what camera, film and settings you used. Images will not be returned.

Image of the Month



Congratulations go to Trotter Hardy, of Williamsburg, for his lovely photograph of a yellow iris growing wild along the edge of "College Creek" in Williamsburg. He used a Canon Digital Rebel XT, ISO 100, and shot it at 1/60th at f9. Good spotting Trotter!

Outdoor Education Program presents

Mother & Daughter Outdoors

August 24-26,
2007



This workshop is designed primarily for females. It is an excellent opportunity for females 9 years of age and above to learn the outdoor skills usually associated with hunting and fishing, but useful in a variety of outdoor pursuits.

This workshop is for you if:

- You would like to get your family involved in outdoor activities and need a place to start.
- You have never tried outdoor activities but have hoped for an opportunity to learn.
- You are a beginner who hopes to improve your skill.
- You are looking for camaraderie of like-minded individuals.

All of our courses focus on outdoor skills using hands-on instructional techniques. Our outdoor skills courses include outdoor cooking, fly fishing, wild edibles, introduction to firearms, skeet shooting, archery, intro to rifle, wilderness survival, map

and compass, animal tracking and many more.

This year's event will be held at Holiday Lake 4-H Educational Center near Appomattox, Va. Registration fee is \$85 per person, which includes meals, lodging, course instruction, use of equipment and evening events. Registration deadline is August 10, 2007, at 5:00 p.m.

For more information visit our Web site

[www.dgf.virginia.gov](http://www.dgif.virginia.gov) for a listing of events with links to registration forms for downloading. Information can also be obtained by calling the Outdoor Education Office at (804) 367-0656 or e-mailing OutdoorEd@dgif.virginia.gov

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